

**ABSTRACT OF THE DISCLOSURE**

The switch mode power supply includes a switching cell SC controllable cyclically and including only one inductive element L and several individually selectable outputs. During each conduction cycle, a total power level corresponding to the sum of the individual power levels respectively required by all the outputs  $OUT_i$  during this cycle is injected into the inductive  
5 element L, the outputs requiring a non-zero individual power level are selected successively and in a predetermined order that is identical for all the cycles, and, at each selected output, the corresponding individual power level is produced.